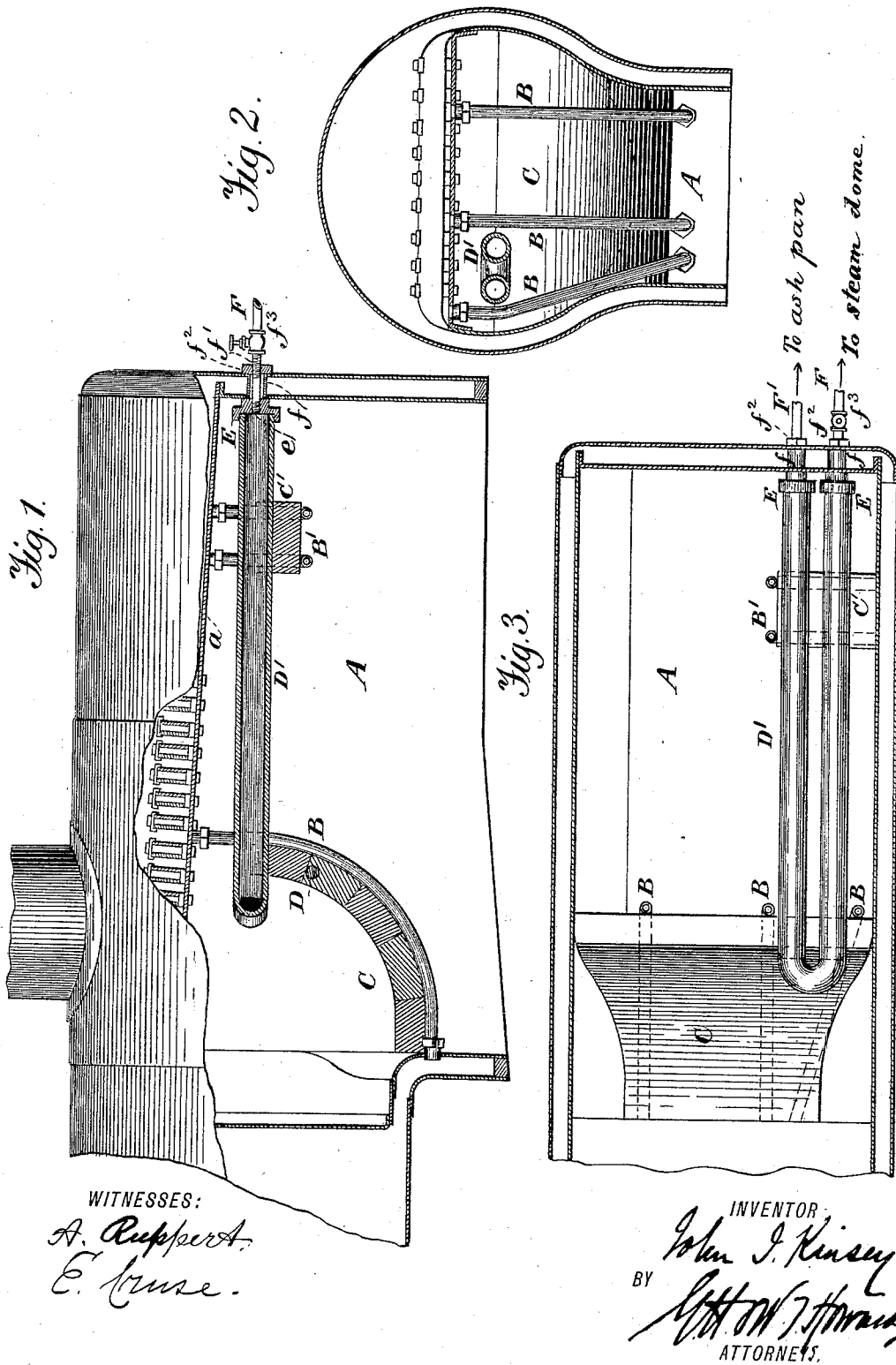


(No Model.)

J. I. KINSEY.
STEAM BOILER.

No. 430,527.

Patented June 17, 1890.



UNITED STATES PATENT OFFICE

JOHN I. KINSEY, OF EASTON, PENNSYLVANIA.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 430,527, dated June 17, 1890.

Application filed November 4, 1889. Serial No. 329,113. (No model.)

To all whom it may concern:

Be it known that I, JOHN I. KINSEY, of Easton, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Steam-Boilers, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

10 This invention relates to an improved construction of the fire-box, to a retort or superheater and its adjuncts supported within the fire-box for superheating steam taken from the dome or other part of the steam-space for transmission to the ash-pan, and to certain other features and combinations, all as hereinafter specified.

15 In the accompanying drawings, Figure 1 is a side elevation of a locomotive-boiler, the fire-box and its inclosed parts being shown in section. Fig. 2 is a sectional front, and Fig. 3 a sectional plan view, of the furnace end of the boiler.

Similar letters of reference indicate similar parts in the respective figures.

A is the fire-box.

20 B B are tubes connecting the crown-sheet *a* and the water-space at the lower rear part of the fire-box. The tubes furnish a rest or bearing for the fire-brick arch C, which is transversely strengthened by a stout iron rod or bar D embedded therein.

25 B' B' are tubes similar to those B B, and which connect the crown-sheet with one of the inner side walls of the fire-box. The tubes B' B' provide a rest or bearing for the fire-brick body C'.

30 D' is a retort or superheater, formed of a cast-iron return-bend, as shown in Fig. 3, its rear end resting upon and being sustained by the fire-brick arch C, while its forward end rests upon the fire-brick body C', supported by the tubes B'. Each branch of the forward end of the retort D' is threaded and provided with a cap E screwed upon it, each cap having an internally-threaded hub *e*, which fits up against the inner wall of the front of the fire-box. Into the threaded hub *e* of each branch of the retort is tapped a pipe F, which passes through the water-space and the thimble or sleeve *f* to the exterior of the fire-box, and is given a thread *f'*, upon which is screwed a nut *f*² for the purpose of fastening the retort D' to the fire-box. The described construction and ar-

35 rangement of parts admit of the ready insertion of the retort, form a secure fastening and tight joint, and permit the convenient removal of the retort when a new one is to be substituted for the old. One of the pipes F is provided with a globe-valve *f*³, the said pipe being intended to lead to the steam-dome or other point from which dry steam may be taken for admission to the retort. The other pipe F' is intended to terminate in the ash-pan, and the steam received into the retort by the exposure of that structure to the heat of the fuel and products of combustion is superheated to a high degree, and on issuing under the grate will, whether alone or mixed with air, (a feature not entering into my present invention,) greatly promote combustion.

I do not limit the application of my invention to locomotive-boilers, as it is equally applicable to stationary, portable, and other classes of boilers. The retort may, without a departure from my invention, be placed crosswise of the fire-box.

I claim—

1. The combination, with the fire-box of a boiler and the return-bend retort herein described, said retort having threaded ends, of a cap screwed upon each end of the said retort and having an internal threaded opening, and a pipe screwed into said opening and passing through the water-space and having upon it a nut adapted to fit up against the outer sheet of the furnace, substantially as specified.

2. The combination, with the fire-box of a boiler and the return-bend retort, of a fire-brick support for the retort, and water-tube rests or bearings for the fire-brick, substantially as set forth.

3. The combination of the fire-box, the return-bend retort, the cap, pipe, and nut connection between the retort and the fire-box, the fire-brick support for the retort, the water-tube rests or bearings for the fire-brick, and pipe-connections secured to the respective branches of the retort and adapted to lead to the steam-dome and ash-pan, respectively, substantially as specified.

In testimony whereof I hereto set my hand.

JOHN I. KINSEY.

Witnesses:

SYLVANUS DIEHL,
W. B. SOLLIDAY.